WHAT IS CLAIMED IS:

1. An X-ray diagnostic apparatus, comprising:

an imaging system that generates image data sets from shots by subjecting a patient to X-ray exposure;

a supporting mechanism that supports said imaging system in such a manner so as to be allowed to move relatively with respect to said patient;

a system controller that controls said imaging system and said supporting mechanism in such a manner that shots are repeated at each of a plurality of shot positions set discretely along a body axis of said patient; and

an image processing portion that generates a given image data set covering a range wider than a field of view of said imaging system from said image data sets.

2. The X-ray diagnostic apparatus according to claim 1, wherein said given image data set is a blood vessel extracted image data set or a blood vessel enhanced image data set.

3. The X-ray diagnostic apparatus according to claim 1, wherein said image processing portion includes a subtraction processing portion that subtracts corresponding mask image data sets from said image data sets.

4. The X-ray diagnostic apparatus according to claim 1, wherein said image processing portion includes an addition processing portion that adds up said image

data sets at a same shot position and thereby generates an addition image data set.

5. The X-ray diagnostic apparatus according to claim 4, wherein said image processing portion includes a joint processing portion that generates said given image data set by jointing said addition image data sets at different shot positions.

6. The X-ray diagnostic apparatus according to claim 1, wherein said image processing portion includes a peak hold processing portion that generates a peak hold image data set from said image data sets at a same shot position.

7. The X-ray diagnostic apparatus according to claim 6, wherein said image processing portion includes a joint processing portion that generates said given image data set by jointing said peak hold image data sets at different shot positions.

8. The X-ray diagnostic apparatus according to claim 1, wherein said plurality of shot positions are aligned at a regular pitch, and the pitch is longer than a radius of the field of view of said imaging system and shorter than a diameter of the field of view of said imaging system.

9. The X-ray diagnostic apparatus according to claim 1, wherein shots are repeated a predetermined number of times at each of said plurality of shot positions.

10. An X-ray diagnostic apparatus, comprising:

an imaging system that generates image data sets from shots by subjecting a patient to X-ray exposure;

a supporting mechanism that supports said imaging system in such a manner so as to be allowed to move relatively with respect to said patient;

a system controller that controls said supporting mechanism in such a manner that said imaging system is repetitively moved and suspended in turn along a body axis of said patient, and controls said imaging system in such a manner that shots are repeated at each suspended position; and

an image processing portion that generates a given image data set covering a range wider than a field of view of said imaging system from said image data sets.

11. The X-ray diagnostic apparatus according to claim 10, wherein said image processing portion includes a subtraction portion that subtracts corresponding mask image data sets from said image data sets.

12. The X-ray diagnostic apparatus according to claim 10, wherein said image processing portion includes:

an addition processing portion that generates an addition image data set by adding up said image data sets at a same shot position; and

a joint processing portion that generates said

given image data set by jointing said addition image data sets at different shot positions.

13. The X-ray diagnostic apparatus according to claim 10, wherein said image processing portion includes:

a peak hold processing portion that generates a peak hold image data set from said image data sets at a same shot position; and

a joint processing portion that generates said given image data set by jointing said peak hold image data sets at different shot positions.

14. The X-ray diagnostic apparatus according to claim 10, wherein said imaging system moves by a movement unit that is longer than a radius of the field of view of said imaging system and shorter than a diameter of the field of view of said imaging system.

15. The X-ray diagnostic apparatus according to claim 10, wherein shots are repeated an equal number of times at each suspended position.

16. An X-ray diagnostic apparatus, comprising:

an imaging system that generates image data sets from shots by subjecting a patient to X-ray exposure;

a supporting mechanism that supports said imaging system in such a manner so as to be allowed to move relatively with respect to said patient;

a system controller that controls said imaging system and said supporting mechanism so as to generate

a plurality of first image data sets at different shot times, all corresponding to a first shot position, and a plurality of second image data sets at different shot times, all corresponding to a second shot position; and

an image processing portion that generates a single third image data set covering a range wider than a field of view of said imaging system from said first and second image data sets.

17. The X-ray diagnostic apparatus according to claim 16, wherein said image processing portion includes:

an addition processing portion that generates a single first addition image data set by adding up said plurality of first image data sets and generates a single second addition image data set by adding up said plurality of second image data sets; and

a joint processing portion that generates said third image data set by jointing said first addition image data set and said second addition image data set according to the first and second shot positions.

18. The X-ray diagnostic apparatus according to claim 16, wherein said image processing portion includes:

a peak hold processing portion that generates a single first peak hold image data set from said plurality of first image data sets and generates a single peak hold image data set from said plurality of

second image data sets; and

a joint processing portion that generates said third image data set by jointing said first peak hold image data set and said second peak hold image data set according to the first and second shot positions.